<u>IN THE CLAIMS</u>

Please amend claims 1, 14, and 22-23 as indicated below.

1. (Currently Amended)   An iterative computer-implemented process for creating an entity that ~~approximately~~ satisfies a <u>predetermined</u> design requirement that at least one characteristic is not in a ~~preexisting art~~ <u>reference structure</u>, the process invoking iterations, each iteration comprising:

> <u>comparing each of a plurality of candidate entities with the reference art to obtain an</u>
>
> > <u>isomorphism value for each candidate entity, the isomorphism value representing</u>
> >
> > <u>a dissimilarity between the respective candidate entity and the reference structure;</u>
>
> <u>determining a fitness value for each of the candidate entities based on a compliance with</u>
>
> > <u>the predetermined design requirement and the isomorphism value of the</u>
> >
> > <u>respective candidate entity;</u>
>
> selecting at least one candidate entity <u>from the plurality of candidate entities that has a</u>
>
> > <u>fitness value exceeds a predetermined threshold</u>~~, wherein selection is more likely~~
> >
> > ~~for a first candidate entity to satisfy a design requirement than a second candidate~~
> >
> > ~~entity and for the first candidate entity to avoid at least one characteristic of a~~
> >
> > ~~preexisting art than the second candidate entity~~; and
>
> creating at least one new candidate entity by creating a variation in the <u>selected</u> at least
>
> > one candidate entity ~~that satisfies the design requirement and avoids at least one~~
> >
> > ~~characteristic of the preexisting art~~.

2.   (Original)   The process defined in Claim 1 wherein creating at least one new candidate entity comprises mutating the at least one candidate entity.

3.   (Original)   The process defined in Claim 2 wherein selecting the at least one candidate entity is performed by simulating annealing.

4.   (Previously Presented)   The process defined in Claim 2 wherein selecting at least one candidate is performed by hill climbing.

5.   (Original)   The process defined in Claim 1 wherein the at least one candidate entity is a member of a population of entities.

6.   (Original)   The process defined in Claim 5 wherein creating at least one new candidate entity comprises performing a crossover operation among a group of candidate entities, the group of entities comprising the selected entity and at least one other entity from the population, the at least one new coordinate entity created by crossover comprising at least a portion of the selected entity and at least a portion of that at least one other entity.

7.   (Original)   The process defined in Claim 1 further comprising performing genetic programming operations.

8.   (Previously Presented)   The process defined in Claim 1 further comprising genetic algorithm operations.

9.   (Previously Presented)   The process defined in Claim 1 wherein the at least one candidate

entity comprises at least one externally invokable sub-entity and at least one internally invokable

sub-entity, the at least one externally invokable sub-entity capable of including at least one

invocation of the at least one internally invokable sub-entity.

10.   (Previously Presented)   The process defined in Claim 9 wherein the at least one candidate

entity comprises at least two internally invokable sub-entities and wherein at least one of the at

least two internally invokable sub-entities includes at least one invocation of another of the at

least two internally invokable sub-entities.

11.   (Previously Presented)   The process defined in Claim 9 wherein the at least one candidate

entity has at least one internally invokable sub-entity that includes at least one invocation of

itself.

12.   (Original)   The process defined in Claim 1 wherein creating at least one new

candidate entity comprises performing an architecture-altering operation involving at least one

internally invokable sub-entity of the at least one selected entity.

13.   (Original)   The process defined in Claim 1 further comprising creating the at least one

candidate entity by a random process.

14.   (Currently Amended)   The process defined in Claim 1 further comprising supplying, from

an external source, the at least one candidate entity partially satisfying the predetermined design

requirement or that only partially <u>includes a characteristic of the reference structure</u> ~~reads on the prior art~~.

15. (Original)   The process defined in Claim 1 wherein selecting a candidate entity that more closely satisfies the design requirement-is ascertained by evaluating the candidate entity by simulating the candidate entity.

16. (Original)   The process defined in Claim 1 wherein selecting the candidate entity that more closely satisfies the design requirement is ascertained by evaluating the candidate by observing a physical realization representing the candidate entity.

17. (Original)   The process defined in Claim 1 wherein the candidate entity conforms to a constrained syntactic structure.

18. (Original)   The process defined in Claim 1 wherein the candidate entity comprises an electrical circuit.

19. (Original)   The process defined in Claim 1 wherein the candidate entity comprises a controller.

20. (Original)   The process defined in Claim 1 wherein the candidate entity comprises an antenna.

21. (Original)   The process defined in Claim 1 wherein the candidate entity comprises a mechanical system.

22. (Currently Amended)   An iterative computer-implemented process for creating an entity that ~~approximately~~ satisfies a <u>predetermined</u> design requirement that includes technical requirements and dissimilarity to a <u>reference structure</u> ~~preexisting technology~~, the process invoking iterations, each iteration comprising:

   producing a structure;

   determining behavior and characteristics of the structure;

   comparing the structure to a <u>reference structure to obtain dissimilarity information</u>
       <u>between the structure and the reference structure</u> ~~preexisting technology~~;

   determining fitness of the structure by combining compliance with the technical
       requirements and dissimilarity <u>information between the structure and the</u>
       <u>reference structure</u> ~~to the preexisting technology~~.

23. (Currently Amended)   A machine-readable medium having stored thereon executable code which causes a machine to perform a process, for creating an entity that ~~approximately~~ satisfies a <u>predetermined</u> design requirement that at least one characteristic is not in a reference structure ~~preexisting art~~, the process invoking iterations, each iteration comprising:

   <u>comparing each of a plurality of candidate entities with the reference art to obtain an</u>
       <u>isomorphism value for each candidate entity, the isomorphism value representing</u>
       <u>a dissimilarity between the respective candidate entity and the reference structure;</u>

determining a fitness value for each of the candidate entities based on a compliance with

the predetermined design requirement and the isomorphism value of the

respective candidate entity;

selecting at least one candidate entity from the plurality of candidate entities that has a

fitness value exceeds a predetermined threshold, ~~wherein selection is more likely~~

~~for a first candidate entity to satisfy a design requirement than a second candidate~~

~~entity and for the first candidate entity to avoid at least one characteristic of a~~

~~preexisting art than the second candidate entity~~; and

creating at least one new candidate entity by creating a variation in the selected at least

one candidate entity ~~that satisfies the design requirement and avoids at least one~~

~~characteristic of the preexisting art~~.